

1. A method of increasing the triacylglyceride content of an organism which comprises expressing in the organism an introduced DNA encoding a protein having glycerol 3-phosphate acyltransferase (GPAT) activity.
2. The method of claim 1, wherein the organism is a plant.
3. The method of claim 2, wherein the plant is an oilseed bearing plant.
4. The method of claim 2, wherein the plant is of the genus *Brassica*.
5. The method of claim 2, wherein the plant is *Arabidopsis thaliana*.
6. The method of claim 1, wherein the organism is a yeast.
7. The method of claim 1, wherein the DNA encodes a protein comprising a sequence that differs from SEQ ID NO: 6 but has at least 70% sequence homology with SEQ ID NO: 6 and the same function as the protein of SEQ ID NO: 6.
8. The method of claim 1, wherein the DNA comprises a sequence encoding a protein comprising SEQ ID NO: 6.
9. The method of claim 1, wherein the DNA encodes a protein comprising a sequence that differs from SEQ ID NO: 9 but has at least 70% sequence homology with SEQ ID NO: 9 and the same function as the protein of SEQ ID NO: 9.
10. The method of claim 1, wherein the DNA comprises a sequence encoding a protein comprising SEQ ID NO: 9.
11. The method of claim 1, wherein the DNA is a DNA having a sequence as recited in SEQ ID NO: 1, or a variant thereof having at least 70% sequence identity to SEQ ID NO: 1.
12. The method of claim 1, wherein the DNA is a DNA having a sequence as recited in SEQ ID NO: 2, or a variant thereof having at least 70% sequence identity to SEQ ID NO: 2.
13. The method of claim 1, wherein the DNA is a DNA having a sequence as recited in SEQ ID NO: 3, or a variant thereof having at least 70% sequence identity to SEQ ID

NO: 3.

14. The method of claim 1, wherein the DNA is a DNA having a sequence as recited in SEQ ID NO: 4, or a variant thereof having at least 70% sequence identity to SEQ ID NO: 4.
15. The method of claim 1, wherein the DNA is a DNA having a sequence as recited in SEQ ID NO: 5, or a variant thereof having at least 70% sequence identity to SEQ ID NO: 5.
16. A method of increasing the triacylglyceride content of an organism by transforming the organism with a vector, wherein the vector comprises a DNA encoding a protein comprising SEQ ID NO: 6, or a protein having the same function comprising a sequence having at least 70% homology with SEQ ID NO: 6.
17. A method of increasing the triacylglyceride content of an organism by transforming the organism with a vector, wherein the vector comprises a DNA encoding a protein comprising SEQ ID NO: 7, or a protein having the same function comprising a sequence having at least 70% homology with SEQ ID NO: 7.
18. A method of increasing the triacylglyceride content of an organism by transforming the organism with a vector, wherein the vector comprises a DNA encoding a protein comprising SEQ ID NO: 8, or a protein having the same function comprising a sequence having at least 70% homology with SEQ ID NO: 8.
19. A method of increasing the triacylglyceride content of an organism by transforming the organism with a vector, wherein the vector comprises a DNA encoding a protein comprising SEQ ID NO: 9, or a protein having the same function comprising a sequence having at least 70% homology with SEQ ID NO: 9.
20. A method of increasing the triacylglyceride content of an organism by transforming the organism with a vector, wherein the vector comprises a DNA encoding a protein comprising SEQ ID NO: 10, or a protein having the same function comprising a sequence having at least 70% homology with SEQ ID NO: 10.
21. A non-human organism transformed with a DNA, wherein the DNA encodes a protein having GPAT activity, and the organism, after transforming, has enhanced ability to

produce triacylglycerides (TAGs).

22. The non-human organism of claim 21, wherein the organism is a plant.
23. The non-human organism of claim 21, wherein the organism is an oilseed bearing plant.
24. The non-human organism of claim 22, wherein the plant is a member of the genus *Brassica*.
25. The non-human organism of claim 21, that is *Arabidopsis thaliana*.
26. The non-human organism of claim 21, wherein the organism is a yeast.
27. The non-human organism of claim 21, wherein the DNA encodes a protein comprising SEQ ID NO: 6, or a protein having the same function comprising a sequence having at least 70% sequence homology with SEQ ID NO: 6.
28. The non-human organism of claim 21, wherein the DNA encodes a protein comprising SEQ ID NO: 7, or a protein having the same function comprising a sequence having at least 70% sequence homology with SEQ ID NO: 7.
29. The non-human organism of claim 21, wherein the DNA encodes a protein comprising SEQ ID NO: 8, or a protein having the same function comprising a sequence having at least 70% sequence homology with SEQ ID NO: 8.
30. The non-human organism of claim 21, wherein the DNA encodes a protein comprising SEQ ID NO: 9, or a protein having the same function comprising a sequence having at least 70% sequence homology with SEQ ID NO: 9.
31. The non-human organism of claim 21, wherein the DNA encodes a protein comprising SEQ ID NO: 10, or a protein having the same function comprising a sequence having at least 70% sequence homology with SEQ ID NO: 10.
32. The non-human organism of claim 21, wherein the DNA is a DNA having a sequence as recited in SEQ ID NO: 1, or a variant thereof having at least 70% sequence identity to SEQ ID NO: 1.
33. The non-human organism of claim 21, wherein the DNA is a DNA having a sequence

as recited in SEQ ID NO: 2, or a variant thereof having at least 70% sequence identity to SEQ ID NO: 2.

34. The non-human organism of claim 21, wherein the DNA is a DNA having a sequence as recited in SEQ ID NO: 3, or a variant thereof having at least 70% sequence identity to SEQ ID NO: 3.
35. The non-human organism of claim 21, wherein the DNA is a DNA having a sequence as recited in SEQ ID NO: 4, or a variant thereof having at least 70% sequence identity to SEQ ID NO: 4.
36. The non-human organism of claim 21, wherein the DNA is a DNA having a sequence as recited in SEQ ID NO: 5, or a variant thereof having at least 70% sequence identity to SEQ ID NO: 5.
37. A vector for genetically transforming an organism, wherein the vector comprises a DNA encoding a protein having GPAT activity, and the organism, after transforming, exhibits enhanced production of triacylglycerides.
38. The vector of claim 37, wherein the vector comprises DNA encoding a protein comprising SEQ ID NO: 6, or a protein having the same function comprising a sequence having at least 70% sequence homology with SEQ ID NO: 6.
39. The vector of claim 37, wherein the vector comprises a DNA encoding a protein comprising SEQ ID NO: 7, or a protein having the same function comprising a sequence having at least 70% homology with SEQ ID NO: 7.
40. The vector of claim 37, wherein the vector comprises a DNA encoding a protein comprising SEQ ID NO: 8, or a protein having the same function comprising a sequence having at least 70% homology with SEQ ID NO: 8.
41. The vector of claim 37, wherein the vector comprises a DNA encoding a protein comprising SEQ ID NO: 9, or a protein having the same function comprising a sequence having at least 70% homology with SEQ ID NO: 9.
42. The vector of claim 37, wherein the vector comprises a DNA encoding a protein comprising SEQ ID NO: 10, or a protein having the same function comprising a

sequence having at least 70% homology with SEQ ID NO: 10.

- Gr^{43.} A method of modifying the fatty acid composition of triacylglycerides produced by an organism, wherein the organism is transformed with a DNA encoding a protein having GPAT activity.

A marked-up copy of the claims showing the amendments made is attached.